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CHAPTER 5

MATERIALS

500 GENERAL

500-1 MATERIALS

Materials installed shall be of such kind and quality to ensure that the dwelling will provide acceptable durability, economy of maintenance and adequate resistance to weather, moisture, corrosion and fire. The local HUD Field Office may request evidence of a material's compliance with the requirements of the structure's plans and specifications and these MPS. Product labels are considered acceptable evidence.

507 THERMAL AND MOISTURE PROTECTION

507-1 BUILDING INSULATION

Materials used for insulation shall be of proven effectiveness and adequate durability so as to ensure that required design specifications concerning heat transmission, sound control and fire rating are attained. Insulation in contact with the ground shall be installed so as not to be adversely affected by soil, vermin and water.

507-2 CAULKING AND JOINT SEALANTS

Materials used for caulking and sealants shall be suitable for the use intended, and shall be compatible with the materials to which they are applied and with any finish that may be applied over them.

508 DOORS, WINDOWS, GLAZING PANELS

508-1 PERFORMANCE TESTING

All windows and sliding glass doors shall be tested for air infiltration, water penetration and physical loading as set forth in Appendix D. The test unit shall be either the largest size marketed by the manufacturer or the size designated in the referenced standard. All windows and sliding glass doors shall meet or exceed the minimum performance levels set forth in Appendix D.

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508-2 METAL DOORS AND FRAMES

508-2.1 Steel Doors

- a. Each interior and exterior steel door shall bear the manufacturer's certification that the product complies with the applicable standard.
- b. Each steel sliding glass door unit shall bear a label that identifies the manufacturer, certifies compliance with the tests required in Appendix D, identifies the certifying organization, and states the maximum size of the unit tested.

508-2.2 Aluminum Doors

Each aluminum sliding glass door and aluminum storm door shall bear the label of an independent inspection agency. The label shall identify the manufacturer by name or symbol, and shall certify compliance with the applicable standard.

508-3 WOOD DOORS

508-3.1 Materials

- a. Doors may be complete manufactured units or stock doors and frames. Job-built wood frames may be used.
- b. Entrance doors shall be of exterior type as defined in the applicable referenced standard and not less than 1-3/4 in. thick. Service doors (where temperature is near the same on both sides) may be 1-3/8 in. thick. Exterior door frames shall be treated against decay.
- c. Interior hinged doors shall be not less than 1-3/8 in. thick. Closet doors may be 1-1/8 in thick, provided that warp does not exceed 1/4 in.

508-4 METAL WINDOWS

508-4.1 General

Where metal windows or sliding glass doors are used in areas subject to a winter design temperature of 10° F or lower, insulating frames shall be provided. These

windows or doors shall comply with AAMA 1503.1-88, Condensation Resistance of Windows, Doors and Glazed Wall Sections. Where wood is to be used as the insulator, it shall be treated with a water repellent preservative. Storm sash are acceptable to serve this purpose if a thermal separation is provided between the prime and the storm window, where both window frames are metal.

508-4.2 Steel Windows

Steel windows shall bear a label that identifies the manufacturer, certifies compliance with the tests required in Section 508-1, identifies the certifying organization, and states the maximum size of the unit tested.

508-4.3 Aluminum Windows

Aluminum windows shall bear the label of an independent inspection agency. The label shall identify the manufacturer by name or symbol, and shall certify compliance with the applicable standard.

508-5 WOOD WINDOWS

508-5.1 Operating Wood Windows

Operating windows shall be manufactured units consisting of the frame, sill, sash, weatherstripping and operating hardware. Job site assembled windows composed of frames and sashes made by different manufacturers are not acceptable.

Each operating wood window unit shall bear the label of an independent inspection agency. The label shall identify the manufacturer by name or symbol and shall certify compliance with the applicable standard.

508-5.2 Fixed Sash Windows

Fixed sash windows such as picture windows and bay windows, may be manufactured, job-built or job assembled units.

508-6 HARDWARE

508-6.1 Hardware shall comply with Section 402-1.2. Locks shall meet or exceed the performance criteria of ANSI A156.2-89 for the series and grades as follows:

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- a. Building entrance doors serving more than two families, series 4000, grade 1.
- b. Living unit entrance doors and building entrance doors serving one or two families, series 4000, grade 2.
- c. Doors within living units, series 4000, grade 3.

The performance criteria are contained in Sections 7, 8, and 9 of ANSI A156.2-89. Evidence of conformance shall be provided to the HUD Field Office upon request.

Three butt hinges shall be used on all exterior doors.

508-6.2 Labeling

Locks shall be labeled as complying with the performance criteria of the applicable series and grade of ANSI A156.2-89. This information shall appear on the lock, in the installation instructions or on the packing box.

509 FINISH MATERIALS

509-1 EXTERIOR WALL FINISHES

- a. Each bundle of shingles or shakes shall bear a label identifying its grade and species, and certifying compliance with the applicable commercial standard.
- b. Each panel or package of hardboard shall bear a label identifying the specific type of hardboard and the manufacturer, and certifying compliance with the applicable standard.
- c. Hardboard products shall be manufactured in accordance with the standards listed in Appendix C. Other hardboard products are considered special products and may be used in accordance with the procedures set forth in Paragraph 513.

509-2 FINISH FLOORING, RIGID

- a. Each bundle or package of wood flooring shall bear a label identifying grade and species.
- b. Ceramic tile shall be identified as required by the applicable referenced standard.

509-3 FINISHED FLOORING, RESILIENT

The thickness of resilient flooring may be less than required by the referenced standards in Appendix C, but no less than the thickness shown in Table 5-9.1.

TABLE 5-9.1
MINIMUM RESILIENT FLOORING THICKNESS

Material		Nominal Wear Layer Thickness (Inches)	(2) Traffic Condition Where Material and Thickness are Acceptable			
			SMOOTH TILE		EMBOSSSED TILE	
			Through Pattern	Surface Pattern	Through Pattern	Surface Pattern
R E S I L I E N T T I L E	Asphalt Tile	1/8 3/32	H M	L L	M L	L L
	Rubber Tile	1/8 5/64	H M	L L	M L	L L
	Vinyl Tile	.08 .05	H M	L L	M L	L L
	Vinyl Tile	1/8 1/16	H M	M L	M L	L L
R E S I L I E N T S H E E T (1)	Rotovinyl (3)	0.020 0.014 0.010	H M L			
	Vinyl Plastic (Backed) Sheet	0.050 0.030 0.020	H M L			
	Linoleum	0.090 0.050	H M			

Notes

- (1) Wear layer may be smooth, embossed or otherwise textured.
 (2) H (heavy traffic) - public stairs, entrance corridors, lobbies, elevators
 M (medium traffic) - stairs within living units and public areas except those designated under H above
 L (light traffic) - areas within living units, except stairs
 (3) Floor covering with translucent or transparent vinyl surface with backing

509-4 CARPETS AND MATS

Carpet cushions shall comply with the requirements of UM 72-80. Carpets shall comply with the requirements of UM 44C-78.

509-5 PAINTING

509-5.1 Lead Content

No paint shall contain more than 0.06 percent lead by weight calculated as lead metal in the total nonvolatile content of liquid paints or in the dried film of paint already applied.

509-5.2 Suitability

If a paint to be used on exterior surfaces is not inherently mold resistant, a suitable fungicide shall be included in the formulation.

513 SPECIAL CONSTRUCTION MATERIALS

513-1 DEFINITION

Special or alternate construction materials and products are those which are new or are not covered by specific requirements in these standards or in the referenced standards in Appendices C, E & F.

513-2 USAGE

Special or alternate materials and products may be used as prescribed in Section 101-1 and in HUD Handbook 4950.1 Technical Suitability of Products Program, Technical and Processing Procedures.

513-3 REQUIREMENTS FOR ACCEPTANCE

Special or alternate materials and products will be accepted for use in multifamily structures in accordance with the procedures set forth in HUD Handbook 4950.1.